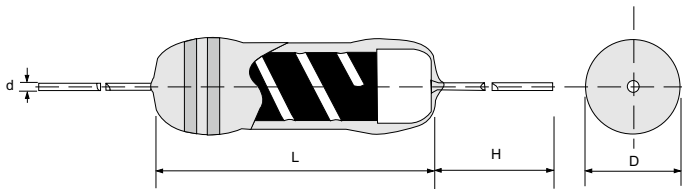


SSR Surge Safety Resistor

Quality • Reliability
Cost-Down via Innovation.

SSR



Features

- Designed to replace carbon or ceramic composition resistor, SSR series is applied in high-surge applications such as fuel ignition systems, power charging/ discharging circuits, TV sets, etc, to absorb harmful surge energy, so to prevent hazard of fire and circuit damage caused by surge energy with a flame-proof coating.
- Products meet RoHS requirements and do not contain substances of very high concern identified by European Chemicals Agency

DIMENSIONS

Type	Body Length (L, mm)	Body Diameter (D, mm)	Lead Wire Length (H, mm)	Lead Wire Diameter (d, mm)	Net Weight Per 1000 Pcs
SSR25	6.50 ± 1.0	2.6 ± 0.3	26 ± 3.0	0.55 ± 0.02	300 Grams
SSR51	9.00 ± 1.0	3.2 ± 0.2	26 ± 3.0	0.60 ± 0.03	340 Grams
SSR100	11.0 ± 1.0	4.0 ± 0.5	28 ± 3.0	0.70 ± 0.03	500 Grams
SSR200	15.5 ± 1.0	5.0 ± 0.5	30 ± 3.0	0.80 ± 0.03	1150 Grams
SSR300	15.5 ± 1.0	5.5 ± 0.5	30 ± 3.0	0.80 ± 0.03	1200 Grams

GENERAL SPECIFICATIONS

Type	Power Rating (at 70°C)	Maximum Working Voltage	Maximum Permissible Surge Voltage	Minimum Resistance	Maximum Resistance	Resistance Tolerance	Available Resistance Values
SSR25	1/4W	250V	10KV	10Ω	180KΩ	±5%	E-24
SSR51	1/2W	300V	15KV	10Ω	220KΩ	±5%	E-24
SSR100	1W	350V	20KV	10Ω	220KΩ	±5%	E-24
SSR200	2W	400V	22.5KV	10Ω	240KΩ	±5%	E-24
SSR300	3W	400V	25KV	10Ω	240KΩ	±5%	E-24

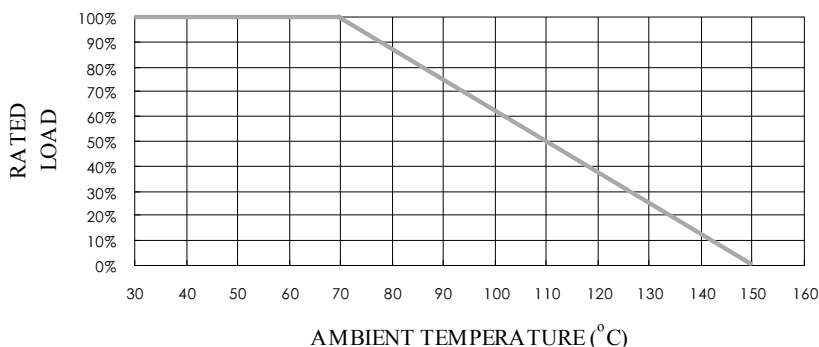
Special sizes, values, and specifications not listed available on special order.

TECHNICAL SUMMARY

Characteristics	Limits
Dielectric Withstanding Voltage, VAC or DC	SSR25 /51 /100 SSR200 SSR300 600 700 800
Temperature Coefficient, PPM / °C*	SSR16 /25 /100 /200 /300: SSR51: ±600 ±750
Operating Temperature Range, °C	-55~+150
Insulation Resistance, MΩ	>10 ⁴

* Not applicable to all resistance values. Please check with us regarding the PPM of specific resistance value(s).

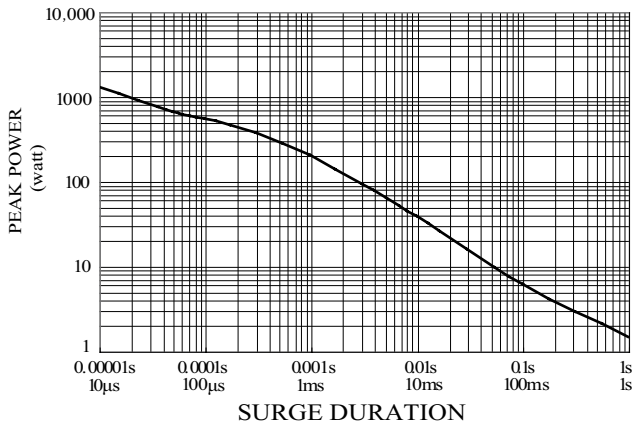
POWER DERATING CURVE



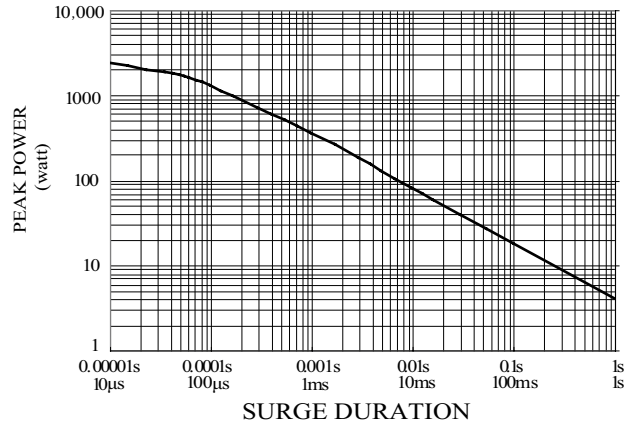
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Cost-Down via Innovation.*

■ SINGLE SURGE PERFORMANCE

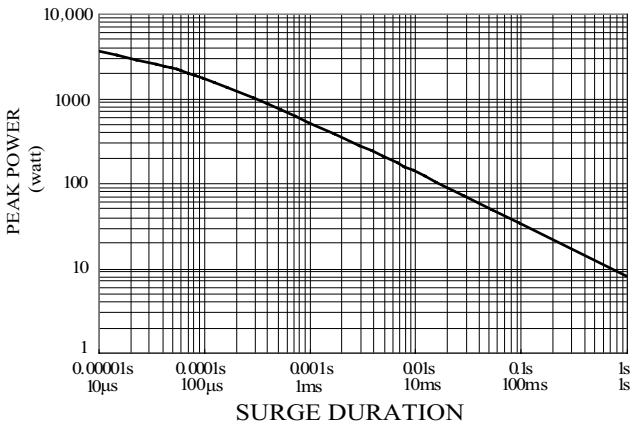
SSR25



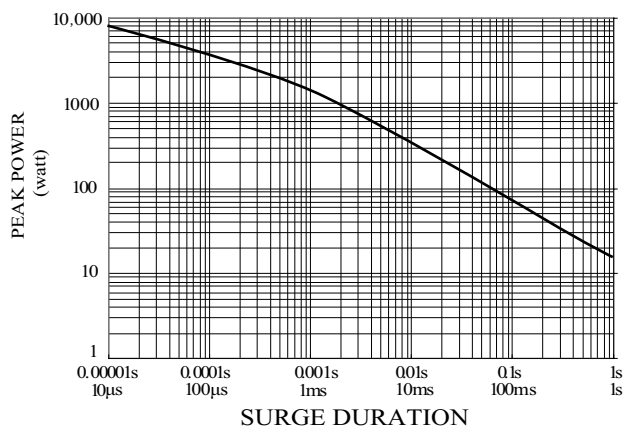
SSR51



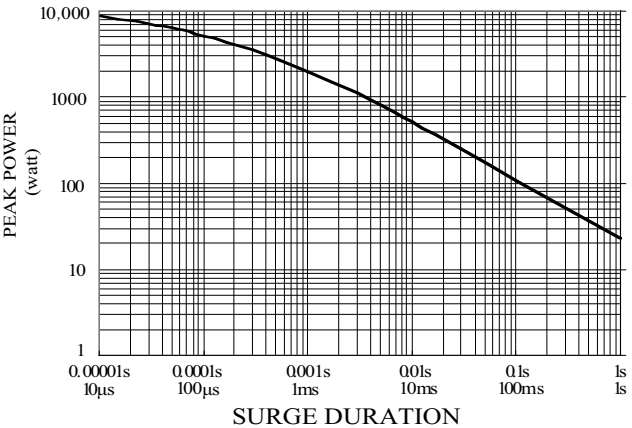
SSR100



SSR200



SSR300

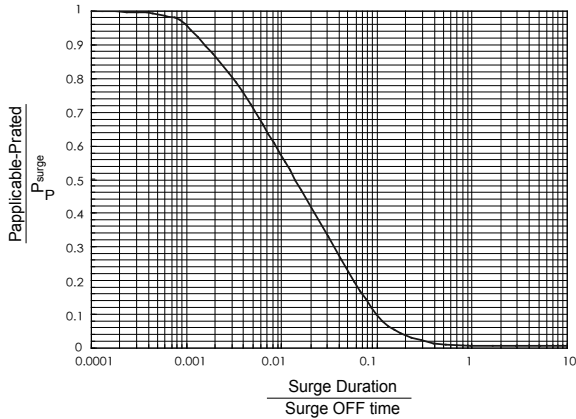


SSR

Quality • Reliability
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■ SURGE POWER DERATING CURVE



Notes:

- SINGLE SURGE PERFORMANCE graph is good for NON REPETITIVE applications operating in an ambient temperature of 70°C or less. For temperatures above 70°C, the graph power must be derated further linearly down to zero at 150 °C.
- To determine applicable surge power in continuous-surge applications:
 1. Identify allowable duration and peak power P_{surge} of single surge;
 2. Determine ratio of surge duration/surge OFF time in application;
 3. Calculate $P_{applicable}$ backwardly according to Y-axis of SURGE POWER DERATING CURVE.

■ PART NUMBER

Example: SSR200J10K0TKZTB500

SSR200	J	10K0	TKZ	TB500
Type	Tolerance	Resistance	TCR	Packaging
	J (5%)	10KΩ 4-character code containing - 3 significant digits 1 letter multiplier <u>OHM MULTIPLIER</u> R = 1 K = 10 ³ M = 10 ⁶ G = 10 ⁹	3-character code TKZ = Default Product Temperature Coefficient. Information of typical product temperature coefficient can be found in the Technical Summary section of the datasheet.*	5-character code TB = Tape Box (pieces per box) SSR16 5K0 = 5,000 <u>SSR25/SSR51</u> 2K0 = 2,000 SSR100 1K0 = 1,000 <u>SSR200/300</u> 500 = 500

* For the availabilities of non-default temperature coefficient, please check with us. Reference for TCR letter codes can be found in section (4) of Part Number Construction in the Appendices.

SSR

Surge Safety Resistor

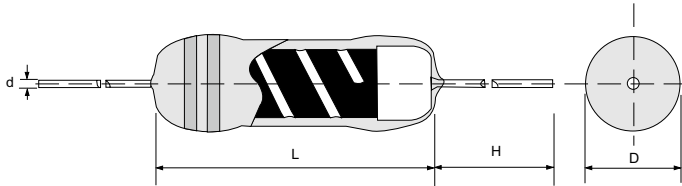
Quality • Reliability
Cost-Down via Innovation.

■ PERFORMANCE SPECIFICATIONS

Characteristics	Test Conditions	Limits		
Short Time Over Load	IEC 60115-1 4.13 5 seconds 2.5x rated voltage (not over 2X max. working voltage)	±1%		
Load Life In Humidity	IEC 60115-1 4.24 56 days rated load (not over max. working voltage) at (40±2)°C and (93±3)% relative humidity	±5%		
Load Life 1,000 hours	IEC 60115-1 4.25.1 Rated load (not over max. working voltage) with 1.5 hours ON, 0.5 hours OFF, at (70±2)°C	±5%		
Resistance To Soldering Heat	IEC 60115-1 4.18.2 Leads immersed till 3mm from the body in (260±5)°C solder for 10±1 seconds	±1%		
Solderability	IEC 60115-1 4.17.2 Solder area covered after (235±3)°C/(2±0.2) seconds with flux applied	1/6W&1/4W	95% Min.	
		1/2W to 3W	90% Min.	
Vibration	IEC 60115-1 4.22 Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 1.52mm and 10 to 2,000 Hz.	±1%		
Thermal Endurance	IEC 60115-1 4.25.3 1000 hours at 150°C without load	±1%		
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +150°C 30minutes, 5 cycles	±2%		
Surge Test	Surge voltage = $\sqrt{(6000 \times P \times R)}$ DC P is power rating, R is resistance value, surge voltage is not more than listed at right. Surge spec = 1.2/50µs Period = 12 sec Number of surges = 3000	SSR25	10 KV	5%
		SSR51	15 KV	
		SSR100	20 KV	
		SSR200	22.5 KV	
		SSR300	25 KV	

Quality • Reliability
Cost-Down via Innovation.

SSR



Features

- Designed to replace carbon or ceramic composition resistor, SSR series is applied in high-surge applications such as fuel ignition systems, power charging/ discharging circuits, TV sets, etc, to absorb harmful surge energy, so to prevent hazard of fire and circuit damage caused by surge energy with a flame-proof coating.
- Products meet RoHS requirements and do not contain substances of very high concern identified by European Chemicals Agency

DIMENSIONS

Type	Body Length (L, mm)	Body Diameter (D, mm)	Lead Wire Length (H, mm)	Lead Wire Diameter (d, mm)	Net Weight Per 1000 Pcs
SSR400	19.0 ± 1.0	6.0 ± 0.5	30 ± 3.0	0.8 ± 0.03	1600 Grams
SSR500	24.0 ± 1.0	8.0 ± 0.5	30 ± 3.0	0.8 ± 0.03	3700 Grams

GENERAL SPECIFICATIONS

Type	Power Rating (at 70°C)	Maximum Working Voltage	Maximum Permissible Surge Voltage	Minimum Resistance	Maximum Resistance	Resistance Tolerance	Available Resistance Values
SSR400	4W	500V	30KV	10Ω	270KΩ	±5%	E-24
SSR500	5W	600V	35KV	10Ω	330KΩ	±5%	E-24

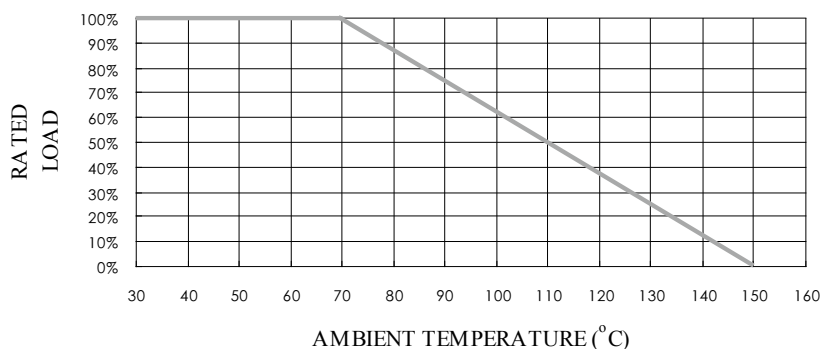
Special sizes, values, and specifications not listed available on special order.

TECHNICAL SPECIFICATIONS

Characteristics	Limits	
Dielectric Withstanding Voltage, VAC or DC	800	
Temperature Coefficient, PPM / °C*	SSR400	±750
	SSR500	±600
Operating Temperature Range, °C	-55~+150	
Insulation Resistance, MΩ	10 ⁴	

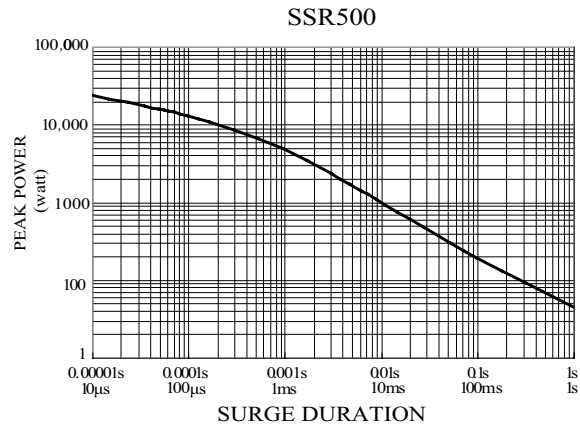
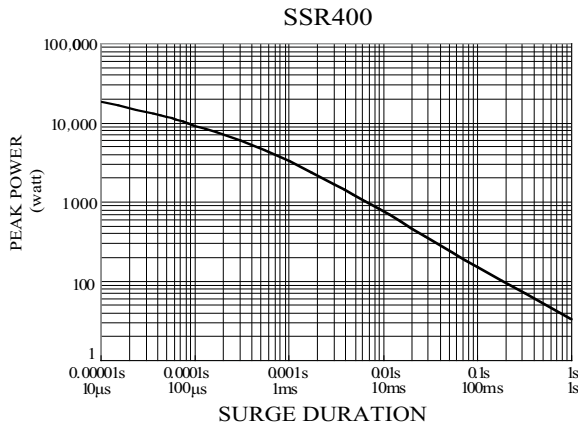
* Not applicable to all resistance values. Please check with us regarding the PPM of specific resistance value(s).

POWER DERATING CURVE



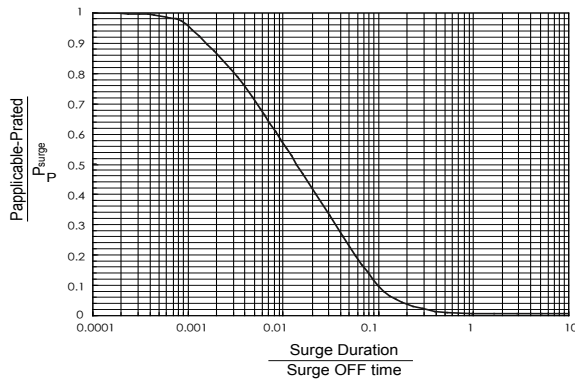
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■ SINGLE SURGE PERFORMANCE



SSR

■ SURGE POWER DERATING CURVE



Notes:

- SINGLE SURGE PERFORMANCE graph is good for NON REPETITIVE applications operating in an ambient temperature of 70°C or less. For temperatures above 70°C, the graph power must be derated further linearly down to zero at 150°C.
- To determine applicable surge power in continuous-surge applications:
 1. Identify allowable duration and peak power P_{surge} of single surge;
 2. Determine ratio of surge duration/surge OFF time in application;
 3. Calculate $P_{applicable}$ backwardly according to Y-axis of SURGE POWER DERATING CURVE.

SSR - Surge Safety Resistor High Power

Quality • Reliability
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SSR

■ PART NUMBER

Example: SSR400J10K0TKZTB400

SSR400	J	10K0	TKZ	TB400
Type	Tolerance	Resistance	TCR	Packaging
	J (5%)	10KΩ 4-character code containing - 3 significant digits 1 letter multiplier <u>OHM MULTIPLIER</u> R = 1 K = 10 ³ M = 10 ⁶ G = 10 ⁹	3-character code TKZ = Default Product Temperature Coefficient. Information of typical product temperature coefficient can be found in the Technical Summary section of the datasheet.*	5-character code TB = Tape Box (pieces per box) SSR400 500 = 500 SSR500 250 = 250

* For the availabilities of non-default temperature coefficient, please check with us. Reference for TCR letter codes can be found in section (4) of Part Number Construction in the Appendices.

■ PERFORMANCE SPECIFICATIONS

Characteristics	Test Conditions	Limits		
Short Time Over Load	IEC 60115-1 4.13 5 seconds 2.5x rated voltage (not over 2X max. working voltage)	±2%		
Load Life In Humidity	IEC 60115-1 4.24 56 days rated load (not over max. working voltage) at (40±2)°C and (93±3)% relative humidity	±5%		
Load Life 1,000 hours	IEC 60115-1 4.25.1 Rated load (not over max. working voltage) with 1.5 hours ON, 0.5 hours OFF, at (70±2)°C	±5%		
Resistance To Soldering Heat	IEC 60115-1 4.18.2 Leads immersed till 3mm from the body in (260±5)°C solder for 10±1 seconds	±1%		
Solderability	IEC 60115-1 4.17.2 Solder area covered after (235±3)°C/(2±0.2) seconds with flux applied	90% Min.		
Vibration	IEC 60115-1 4.22 Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 1.52mm and 10 to 2,000 Hz.	±1%		
Thermal Endurance	IEC 60115-1 4.25.3 1000 hours at 150°C without load	±1%		
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +150°C 30minutes, 5 cycles	±3%		
Surge Test	Surge voltage = $\sqrt{(6000 \times P \times R)}$ DC P is power rating, R is resistance value, surge voltage is not more than listed at right. Surge spec = 1.2/50µs Period = 12 sec Number of surges = 3000	SSR400	30 KV	5%
		SSR500	35 KV	